CLAIMS

1. Process for controlling the temperature homogeneity of iron and steel products (2), in particular of slabs or billets, in a reheat furnace (1) equipped with lateral burners, according to which process the lateral burners are operated in bang bang mode, and the operating and stoppage time of each burner is adjusted to obtain the desired temperature, characterized in that spread-flame burners (B1-B4) are chosen as lateral burners, that these burners are operated at a regime close to the maximum regime or at the maximum regime, and that the order of ignition of the burners (B1-B4) is chosen to promote the swirling and the circulation of the flue gases so as to reduce the hot point of the flame and to obtain a better temperature homogeneity of the walls of the furnace and of the products.

2. Process according to Claim 1, characterized in that at least two burners (B1, B2) and (B3, B4) are provided on each of the lateral walls of the furnace, and that the order of ignition of the burners (B1, B2; B3, B4) is provided so as to promote the swirling and the circulation of the flue gases in the furnace.

3. Process according to Claim 1, characterized in that at least two burners (B1, B2) and (B3, B4) are provided on each of the lateral walls of the furnace, and that the order of ignition of the burners (B1, B2; B3, B4) is chosen in such a way as to reduce the pressure variations in the furnace and in the circuits for feeding the burners with fuel and oxidizer.

4. Process according to Claim 1 to 3, characterized in that the burners are started and stopped for modifying the circulations of the flue gases in the enclosure of the furnace (1) by a computer using

mathematical control algorithms based on a thermal objective defined for the product.

5. Process according to Claim 4, characterized in that the computer is made to control the thermal distribution, in particular the longitudinal and/or transverse curve of temperature of the furnace, as a function of the position of the charge, of its characteristics and of its progress along the length of the furnace and of the temperature and exit temperature distribution objective sought for this product.

6. Process according to Claim 4, characterized in that the computer is made to control the thermal distribution of temperature in the furnace (1) as a function of a forthcoming manufacturing program on removal from the furnace, and of a rolling program on exit, so as to optimize the heating characteristics of the products.

7. Process according to one of the preceding claims, characterized in that the adjusting of the distribution of power injected into the enclosure is carried out in such a way as to favour the recuperation of energy in the entrance zone of the furnace.

8. Process according to one of the preceding claims, characterized in that the distribution of the thermal power injected in the longitudinal and transverse direction of the furnace can be deduced from measurements made during the rolling operation which follows the reheating.

9. Process according to any one of the preceding claims, characterized in that the thermal profile of the furnace (1) and the longitudinal thermal profile of the product (2) delivered by the furnace are computed automatically by a computer using mathematical models,

fuzzy logic systems or algorithms of neuro-predictive type.

10. Furnace (1) for reheating iron and steel products (2), in particular slabs or billets, which furnace is equipped with lateral burners, comprising drive means for operating the lateral burners in bang bang mode, and for adjusting the operation and stoppage time of each burner with a view to obtaining the desired temperature, characterized in that the lateral burners are spread-flame burners (B1-B4), that these burners are driven in such a way as to operate at a regime close to the maximum regime or at the maximum regime, and according to an order of ignition suitable for promoting the swirling and the circulation of the flue gases so as to reduce the hot point of the flame and to obtain a better temperature homogeneity of the walls of the furnace and of the products.

11. Furnace for reheating iron and steel products according to Claim 10, characterized in that it comprises on its lateral walls at least two burners (B1, B2) and (B3, B4) and that the order of ignition of the burners (B1-B4) is provided so as to promote the swirling and the circulation of the flue gases.

12. Furnace for reheating iron and steel products according to Claim 10, characterized in that it comprises on its lateral walls at least two burners (B1, B2) and (B3, B4) and that the order of ignition of the burners (B1-B4) is provided so as to limit the pressure variations in the furnace and in the circuits for feeding the burners with fuel and oxidizer.

13. Furnace for reheating iron and steel products according to Claims 10 to 12, characterized in that it comprises a computer using mathematical control algorithms based on a thermal objective with regard to the product so as to drive the modification of the

circulations of the flue gases in the enclosure of the said furnace.

14. Furnace for reheating iron and steel products according to Claim 13, characterized in that it comprises sensors for supplying the computer with information allowing it to control the thermal distribution, in particular the longitudinal and/or transverse curve of temperature of the furnace, as a function of the position of the charge, of its characteristics and of its progress along the length of the furnace and of the temperature and exit temperature distribution objective sought for this product.

15. Furnace for reheating iron and steel products according to Claim 13 or 14, characterized in that it comprises sensors of temperature measurements made during a rolling operation subsequent to the furnace, these sensors being linked to the computer which produces therefrom the distribution of thermal power injected in the longitudinal and transverse direction of the furnace.

16. Furnace for reheating iron and steel products according to Claim 13, characterized in that the computer is programmed with mathematical models, fuzzy logic systems or algorithms of neuro-predictive type for determining the thermal profile of the furnace and the longitudinal thermal profile of the product delivered by the furnace.